

Claims

- [c1] 1. An energy management system for a power generating device having a working fluid intake comprising:
- an electrical dissipation device coupled to said power generating device; and
- a dissipation device cooling system, said dissipation device cooling system configured to direct a portion of a working fluid to said electrical dissipation device so as to provide thermal control to said electrical dissipation device.
- [c2] 2. The energy management system of claim 1, wherein said power generating device is selected from the group consisting of hybrid fuel cells, steam turbines, microturbines and gas turbines.
- [c3] 3. The energy management system of claim 1, wherein said electrical dissipation device comprises a resistor.
- [c4] 4. The energy management system of claim 1, wherein said dissipation device cooling system comprises a valve.
- [c5] 5. An energy management system for a power generating device comprising:
- an electrical dissipation device coupled to said power generating device, said power generating device comprising a turbine generator;
- a dissipation device cooling system coupled to said electrical dissipation device; and
- a control system coupled to an output of said turbine generator and coupled to said dissipation device cooling system wherein said control system is configured to determine a condition of said turbine generator so as to direct said dissipation device cooling system to provide a portion of a working fluid, in response to said condition, to said electrical dissipation device for thermal control of said electrical dissipation device.
- [c6] 6. The energy management system of claim 5 wherein said dissipation device cooling system comprises a valve, said valve positioned to provide said portion of said working fluid across said electrical dissipation device.
- [c7] 7. The energy management system of claim 5 wherein said condition comprises a load condition.

[c8] 8.The energy management system of claim 5 wherein said turbine generator is coupled to a turbine shaft.

[c9] 9.The energy management system of claim 8 wherein said condition comprises a speed condition of said turbine shaft.

[c10] 10.An energy management system for a gas turbine having a working fluid intake comprising:
a compressor;
a combustor coupled to said compressor;
a turbine generator coupled to said compressor;
a dissipation device cooling system, said dissipation device cooling system coupled to said compressor; and
an electrical dissipation device, said electrical dissipation device coupled to an electrical output of said turbine generator for receiving a current therein, wherein said dissipation device cooling system is configured to direct a portion of a working fluid to said electrical dissipation device so as to provide thermal control to said electrical dissipation device.

[c11] 11.The energy management system of claim 10 wherein said dissipation device cooling system comprises a valve.

[c12] 12.The energy management system of claim 10 further comprising a recuperator.

[c13] 13.An energy management system for a steam turbine having a working fluid intake comprising:
a steam-generating device;
a turbine generator coupled to said steam-generating device;
a dissipation device cooling system, said dissipation device cooling system coupled to said steam generating device; and
an electrical dissipation device, said electrical dissipation device coupled to an electrical output of said turbine generator for receiving a current therein, wherein said dissipation device cooling system is configured to direct a portion of a working fluid to said electrical dissipation device so as to provide thermal

control to said electrical dissipation device.

[c14] 14.The energy management system of claim 13 wherein said dissipation device cooling system comprises a valve.

[c15] 15.The energy management system of claim 13 wherein said steam generating device is selected from the group consisting of a boilers and heat recovery steam generators.

[c16] 16.An energy management system for a hybrid fuel cell having a working fluid intake comprising:

a compressor;

a fuel cell coupled to said compressor;

a turbine generator coupled to said compressor;

a dissipation device cooling system, said dissipation device cooling system coupled to said compressor; and

an electrical dissipation device, said electrical dissipation device coupled to an electrical output of said turbine generator for receiving a current therein, wherein said dissipation device cooling system is configured to direct a portion of a working fluid to said electrical dissipation device so as to provide thermal control to said electrical dissipation device.

[c17] 17.The energy management system of claim 16 wherein said dissipation device cooling system comprises a valve.

[c18] 18.The energy management system of claim 16 wherein said hybrid fuel cell comprises a solid oxide fuel cell.

[c19] 19.A method of controlling a power generating output comprising:
providing an electrical dissipation device;
providing a dissipation device cooling system; and
opening said dissipation device cooling system to direct a portion of a working fluid to said electrical dissipation device so as to provide thermal control to said electrical dissipation device.

[c20] 20.The method of claim 19 wherein said dissipation device cooling system is

positioned to dispose a fluid flow path across said electrical dissipation device when a current flows through said electrical dissipation device.

[c21]

21. The method of claim 19 further comprising providing a control system coupled to an output of a turbine generator and coupled to said dissipation device cooling system wherein said control system determines a load condition in said turbine generator so as to direct said dissipation device cooling system to provide a portion of a working fluid to said electrical dissipation device for thermal control of said electrical dissipation device.

[c22]

22. The method of claim 19 further comprising providing a control system coupled to an output of a turbine shaft and coupled to said dissipation device cooling system wherein said control system determines a speed condition in said turbine shaft so as to direct said dissipation device cooling system to provide a portion of a working fluid to said electrical dissipation device for thermal control of said electrical dissipation device.